

What is claimed is:

1. A computer-readable medium having computer-executable  
5 instructions for performing steps by a client for establishing  
an authenticated connection with a server, comprising:

preparing a request packet containing authentication  
request data for requesting establishment of an authenticated  
connection, the authentication request data formatted for  
10 prompting a server recognizing said data to respond with a  
first pre-defined message and for prompting a server not  
recognizing said data to respond with a second pre-defined  
message;

15 sending the communication packet to the server;  
receiving a response packet containing a response message  
from the server responding to the communication packet;

if the response message is the first pre-defined message,  
transmitting credential data of the client to the server for  
authentication;

20 if the response message is the second pre-defined  
message, transmitting subsequent communication to the server  
over a non-authenticated connection.

2. A computer-readable medium as in claim 1, having  
25 further computer-executable instructions for performing the  
step of: if the response message is a third pre-defined  
message indicating that the client has an existing

authenticated connection with the server, transmitting subsequent communication to the server over the existing authenticated connection.

5           3. A computer-readable medium as in claim 1, having further computer-executable instructions for performing the steps of:

identifying from the response packet an authentication protocol supported by the server;

10           communicating with server, including said transmitting credential data, to perform authentication of the client under the authentication protocol.

4. A computer-readable medium as in claim 1, wherein the  
15 authentication request data are included in a header portion of the request packet.

5. A computer-readable medium as in claim 4, wherein the request packet is constructed as a Hypertext Transport  
20 Protocol (HTTP) request, and the authentication request data identify a method under the Hypertext Transport Protocol.

6. A computer-readable medium as in claim 1, wherein the request and response packets are constructed under a first  
25 communication protocol, and each of the request and response packets containing a data portion containing communication data formatted according to a second communication protocol,

and wherein the authentication request data are in the data portion of the request packet.

7. A computer-readable medium as in claim 6, wherein the  
5 first communication protocol is the Hypertext Transport Protocol (HTTP).

8. A computer-readable medium as in claim 6, wherein the  
10 second communication protocol is the Internet Printing Protocol (IPP).

9. A computer-readable medium having stored thereon a data structure having:

15 a first data region containing data representing a header portion of a communication packet, including authentication request data representing a request by a client to form an authenticated connection with a server, the authentication request data formatted to prompt a server not recognizing the authentication request data to respond with a pre-defined  
20 error message; and

a second data region containing data representing a data portion of the communication packet.

10. A computer-readable medium as in claim 9, wherein  
25 the communication packet is formatted according to the Hypertext Transport Protocol (HTTP).

11. A computer-readable medium as in claim 10, wherein the authentication data represent a method under the Hypertext Transport Protocol.

5        12. A computer-readable medium having stored thereon a data structure having:

        a first data region containing data representing a header portion of a communication packet, and

        a second data region containing data representing a data  
10        portion of the communication packet, including authentication request data representing a request by a client to form an authenticated connection with a server, the authentication request data formatted to prompt a server not recognizing said data to respond with a pre-defined error message.

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        13. A computer-readable medium as in claim 12, wherein the communication packet is formatted according to the Hypertext transport Protocol (HTTP).

20        14. A computer-readable medium as in claim 13, wherein the data in the second data region represent communication data formatted according to the Internet Printing Protocol (IPP), and the authentication data represent an operation under the Internet Printing Protocol.

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        15. A method of communication for a client to force a server supporting both authenticated and non-authenticated

connections to establish an authenticated connection,  
comprising the steps of:

5 sending, by the client, a request packet to the server,  
the request packet including authentication request data  
indicating a request for forming an authenticated connection  
with the server;

checking, by the server in response to receipt of the  
request packet, whether an authenticated connection with the  
client exists;

10 if an authenticated connection with the client does not  
exist, returning by the server to the client a response packet  
including a response message indicating recognition of the  
authentication request data;

in response to the response message in the response  
15 packet, sending by the client credential data to the server  
for authentication.

16. A method as in claim 15, wherein the response packet  
includes an identification of an authentication protocol  
20 supported by the server, and the step of sending credential  
data includes communicating with the server for client  
authentication according to the authentication protocol.